



# Technical Paper

## Power Generation

### Session 12-2

## Energy saving of cooling water pumps for power plants using adjustable propeller blades

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## Summary

Cooling water pumps for power plants or other industrial applications with variable cooling water demand can save energy by adjusting the flow rate accordingly. This is shown comparing pumps with adjustable propeller blades and fixed impeller pumps.

The adjustment of the pitch angle of the propeller blades is performed by means of a special power distributing (differential) gear during operation or shutdown of the pump.

Both pump types are designed for the same main operating point 100% load. The energy saving of the adjustable pump during part-load of the plant is calculated for different load profiles.

Depending on the load profile and the internal energy costs the ROI can be reached within 2 to 3 years.